WHAT IS CLAIMED IS:

1. A mask comprising a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern which are arranged so that where a virtual lattice is assumed which has a lattice point located at a center of the predetermined pattern, a center of the auxiliary pattern is offset from the lattice point of the virtual lattice.

2. A mask according to aspect 1, wherein the center of the auxiliary pattern is approximately located on the virtual lattice.

3. A mask according to aspect 1, wherein an offset between a center of the auxiliary pattern and a corresponding lattice point is 1 / 6 to 5 / 6 as long as a period of the virtual lattice.

4. A mask according to aspect 1, wherein an offset between a center of the auxiliary pattern and a corresponding lattice point is 1 / 3 to 2 / 3 as long as a period of the virtual lattice.

5. A mask according to aspect 1, wherein the auxiliary pattern has an opening, and a center of two

lattice points in the virtual lattice is located at the opening of the auxiliary pattern.

6.   A mask according to claim 1, wherein the predetermined pattern includes plural differently sized patterns which attempt to form the same size of patterns on an object to be exposed.

7.   A mask according to claim 1, wherein the auxiliary pattern includes first and second auxiliary patterns having different areas from each other.

8.   A mask comprising a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern which are arranged so that where a virtual lattice is assumed which has an origin approximately located at a center of the predetermined pattern, the closest auxiliary pattern to the predetermined pattern on the virtual lattice among auxiliary patterns oblique to the predetermined pattern is within a range between 0° and 45°.

9.   A mask according to aspect 8, wherein the closest auxiliary pattern to the predetermined pattern on the virtual lattice among auxiliary patterns oblique to the predetermined pattern is within a range between 9° and 40°.

10. A mask comprising a predetermined contact hole pattern and an auxiliary pattern that includes a contact hole smaller than the predetermined pattern which are arranged so that where a virtual lattice is

5 assumed which has a lattice point on the predetermined contact hole pattern, the auxiliary pattern is offset from the lattice point of the virtual lattice.

11. A mask according to aspect 10, wherein an

10 offset is 1 / 6 to 5 / 6 as long as a period of the virtual lattice.

12. A mask comprising:

plural predetermined patterns; and

15 an auxiliary pattern smaller than the predetermined pattern, wherein a virtual lattice formed by said plural predetermined patterns defines at least one virtual rectangle, and said auxiliary pattern is arranged at or near a node between diagonal lines.

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13. A mask according to claim 12, wherein said plural predetermined patterns and the auxiliary pattern are arranged so that said plural predetermined patterns and the auxiliary pattern have a period in a direction

25 of the diagonal line.

14.   An exposure method comprising the step of illuminating a mask by using light that enables the predetermined pattern to resolve and prevents the auxiliary pattern from resolving, and exposing an object using the light from the mask,

wherein the mask arranges a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern so that where a virtual lattice is assumed which has a lattice point located at a center of the predetermined pattern, a center of the auxiliary pattern is offset from the lattice point of the virtual lattice.

15.   An exposure method comprising the step of illuminating a mask by using light that enables the predetermined pattern to resolve and prevents the auxiliary pattern from resolving, and exposing an object using the light from the mask via a projection optical system,

wherein the mask arranges a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern so that where a virtual lattice is assumed which has a lattice point located at a center of the predetermined pattern, a center of the auxiliary pattern is offset from the lattice point of the virtual lattice,

wherein said illuminating step illuminates
the mask under an illumination condition that provides
bright positions apart from an optical axis by about r
/ (4 · α) on a coordinate system around the optical

5   axis on a pupil surface in the projection optical
system, where r is a radius of a pupil in the
projection optical system, and α is a value of a half
cycle of the virtual lattice times a numerical aperture
of the projection optical system divided by a

10   wavelength of the light.

16.   An exposure method comprising the step of
illuminating a mask by using light that enables the
predetermined pattern to resolve and prevents the

15   auxiliary pattern from resolving, and exposing an
object using the light from the mask via a projection
optical system,

wherein the mask arranges a predetermined
pattern and an auxiliary pattern smaller than the

20   predetermined pattern so that where a virtual lattice
is assumed which has a lattice point located at a
center of the predetermined pattern, a center of the
auxiliary pattern is offset from the lattice point of
the virtual lattice,

25   wherein said illuminating step illuminates
the mask under an illumination condition that provides
bright positions apart from an optical axis by about 1

/ (4 · α) on a coordinate system around the optical

axis on an effective light source, where α is a value

of a half cycle of the virtual lattice times a

numerical aperture of the projection optical system

5   divided by a wavelength of the light.

17.   An exposure method according to claim 16,

wherein the effective light source has a dark center

portion.

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18.   A mask designing method suitable for an

exposure method for illuminating a mask by using light

that enables the predetermined pattern to resolve and

prevents the auxiliary pattern from resolving, and for

15   exposing an object using the light from the mask via a

projection optical system, said mask designing method

comprising the step of:

arranging the auxiliary pattern such that

three beams that are not aligned with a straight line

20   enter a pupil surface in the projection optical system.

19.   A method according to claim 18, wherein the

three beams are least one of (-1, 1 / 2) diffracted

light, (-1, -1 / 2) diffracted light, (1, 1 / 2)

25   diffracted light, (1, -1 / 2) diffracted light, (1 / 2,

1) diffracted light, (1 / 2, -1) diffracted light, (-1

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/ 2, 1) diffracted light and (-1 / 2, -1) diffracted light.

20. A mask designing method suitable for an exposure method for illuminating a mask by using light that enables the predetermined pattern to resolve and prevents the auxiliary pattern from resolving, and for exposing an object using the light from the mask via a projection optical system, said mask designing method comprising the step of:

arranging plural auxiliary patterns in a direction other than a periodic direction of the predetermined pattern and other than a direction orthogonal to the periodic direction.

21. A program that enables a computer to execute a mask designing method suitable for an exposure method for illuminating a mask by using light that enables the predetermined pattern to resolve and prevents the auxiliary pattern from resolving, and for exposing an object using the light from the mask via a projection optical system, said mask designing method comprising the step of arranging the auxiliary pattern such that three beams that are not aligned with a straight line enter a pupil surface in the projection optical system.

22. A device fabricating method comprising the steps of:

exposing an object by using a mask; and

developing the object that has been exposed,

5   wherein a mask arranges a predetermined pattern and an auxiliary pattern smaller than the predetermined pattern so that where a virtual lattice is assumed which has a lattice point located at a center of the predetermined pattern, a center of the

10   auxiliary pattern is offset from the lattice point of the virtual lattice.